

—♦— SOLUBLE —♦—

FIR TREE OIL

INSECTICIDE:

FOR

PLANTS and 
 ANIMALS.

With FULL DIRECTIONS as to its
application for killing Insects on
Plants, Animals and Birds

BY

E. GRIFFITHS HUGHES,

AGENTS:—

AUGUST RÖLKER & SONS,
NEW YORK.

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PREFACE.

THE information conveyed in these pages is derived from personal experiments, after careful study of the application of Insecticides for destroying insects and parasites infesting ornamental plants and fruit trees.

The difficulty of producing an Insecticide to be effectual in destroying hardy parasites, without injuring the delicate shoots and foliage of tender plants, and at the same time being clean and agreeable in the using, has by the introduction of Fir Tree Oil been satisfactorily overcome.

Fir Tree Oil has been so well received since its introduction by all horticulturists, and written about with so much enthusiasm in the journals, and also in private letters to the manufacturer, that the publication of testimonials would only unnecessarily add to the proportions of this treatise.

The other preparations recommended in this book have been introduced after careful experiments, and may be used with every degree of confidence.

E. G. H.

FIR TREE OIL INSECTICIDE.

A Soluble Hydro-Carbon Oil for mixing with water, to be applied to plants, for killing all Insects and Parasites whether at the roots or on the foliage.

Fir Tree Oil was introduced as an Insecticide some 12 years ago, and is now used in every country in the world by all horticulturists and fruit growers of any importance. It is considered by all orchid growers as the only Insecticide that is fit to be used for such delicate and valuable plants.

Since the introduction of Fir Tree Oil a great number of imitations have appeared in the field, to flourish for a time, and then disappear.

No pretence has ever been made to excel Fir Tree Oil as an Insecticide for plants and animals. Imitators who can only sell their productions at low prices soon find their level, and those who use such preparations soon find their mistake, for nothing succeeds like a genuine article which can always be depended upon for the work required of it;

for all persons connected with Horticulture and the breeding of animals are interested in the great problem of how to keep down vermin.

The attack of insects on plants is nearly always underneath the leaves, and often go unnoticed until a good deal of damage is done. This is the case with Green Fly, Thrip and Red spider, and if the plants are neglected they may suffer so much that the application of Insecticides may do further injury if care is not exercised in applying it.

Fir Tree Oil as an Insecticide is introduced as a perfect remedy for destroying vermin of all kinds on plants and animals. We must not forget that there are those who have had great practical experience in cleaning and keeping clean the plants under their care, and to those, whether they be amateur or professional, I would mention that all parasites are much easier killed when warm solutions are used for syringing them than when the solution is cold. Insects have the power of protecting themselves from cold solutions, which they do not make use of when warm solutions are applied. The plants also run less risk of damage.

In mixing Fir Tree Oil it is always necessary to use soft water ; this can easily be got by using boiled water ; but in large establishments the water can be drawn from the boiler, as this will be found most suitable for the purpose.

In the general directions sent out with the Fir Tree Oil certain quantities of the Oil are recommended for mixing with so much water. This may be followed as a general rule, but it must not be forgotten that insects vary in their tenacity of life, and at certain seasons of the year it will be found necessary to make the solutions a little stronger by adding a small quantity more of the Fir Tree Oil.

It will be found an excellent plan when preparing the solution, before it is applied to the plant, to take a leaf with insects on and dip it in it. If the insects are instantly killed the solution will be strong enough; if on the other hand they are not all killed, add a little more of the Fir Tree Oil, and test as before with another leaf. The right strength will soon be arrived at, after which any quantity of the solution can be prepared.

It may here be explained that the action of Fir Tree Oil on insects is to dissolve the outer cuticle of the skin, and stop their breathing power which instantly kills them.

There is no fear of the solution doing any injury to the roots of plants as it is purely vegetable and decomposes in the soil, forming a weak liquid manure, which is taken up by the roots in the ordinary way.

The application of Insecticide to trees and plants should be done in the evening or

early morning before the sun becomes powerful, so as to give time for the foliage to dry, and so prevent scorching.

Pot plants, not too large to handle, should be dipped if possible and allowed to drain quickly, and then syringed with water to send off all the dirt.

A very good way is to have an open tub and when the plants are syringed the solution will run into it, and this may be used over again, but as all plants cannot be syringed the paint brush and the sponge will come in very useful for hard wooded and large foliated plants.

Mealy Bug, American Blight, and Scale are much more effectually dealt with by this method than by syringing. It is also an economical way of using Insecticides, and safe in the hands of boys and young girls.

Fir Tree Oil will answer every purpose required of it as a dressing for plants and animals, and mistakes or failures can only happen through the pure stupidity of the person using it.

In large establishments one man should be told off to do the mixing, and the solutions so prepared given to the boys for cleaning the plants. If some such a system were adopted the work would be carried out satisfactorily, and the plants would not suffer from any error or mistake of the men.

AMERICAN BLIGHT.



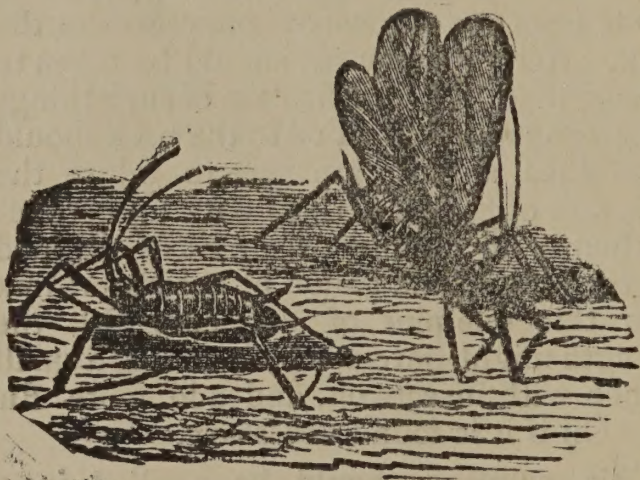
The presence of these destructive insects on apple trees is easily detected by a white cotton-like substance which appears to exude from the cracks or punctures in the bark. Active measures should be taken to destroy them. The application of such things as parrafin and linseed oil to the bark should be avoided, as they are sure to injure the tree, and often kill it right out. The proper method is to dissolve six ounces of good joiners glue in one gallon of hot water; mix with this one pint of Fir Tree Oil; the strength might be tested by inserting a small branch with insects on, and add more Fir Tree Oil if it is found necessary.

This solution should be applied in a warm state, and as it dries the glue will prevent the Insecticide being quickly washed off.

The Apple Trees should be dressed in this way as early in the spring as possible, for if the cracks are filled with this solution it will prevent the Blight breeding.

The trees should be carefully watched and attended to on the first appearance of the fluffy substance, which is exuded, and those Gardeners who are allowed the use of Fir Tree Oil, and have their apple trees infested with American Blight should emigrate and give place to better men to raise the standard of Horticulture in the land of their fathers.

GREEN FLY.



Belong to a class of Insects which infest underneath the leaves, and young growth of almost every garden and greenhouse plant. The injury done by these Insects is not seen for a few days, as their colour and position underneath the leaves prevent them being seen.

All Horticulturists know sadly too much about these Insects, how quickly they breed and multiply, and the mess they can make of the plants if left undisturbed for a few days.

They are easily destroyed by a weak solution of Fir Tree Oil in soft water. Half a pint of the Oil to 2 gallons of warm water will be about the right strength, but this can be tested by inserting a leaf with the Insects on. The quickest way of dealing with them is by using a Syringe. Smaller plants and Ferns can be dipped. When the growth is very tender the plants should be syringed with water directly after using the Insecticide.

P.S.—At the end of this book will be seen drawings of Pumps, Syringes and Aphicides, all of which are extensively used and give immense satisfaction to those who use them.

BLACK FLY.

CHERRY & BEAN APHIDES.

This is a black Insect which infests hard wooded Plants and Trees. It is much harder to kill than the Green Fly.

Fir Tree Oil, one part mixed with twenty parts of very thin well boiled flour paste, will make the Insecticide stick and harden better. The syringing should be done early in the morning so that the sun may dry it

on. The solution should be warm when applied to the trees; as a rule one application generally suffices.

CATERPILLARS.



These are the larva of Butterflies, Moths, Sawflies, and a numerous body of other Insects. In the majority of cases they are hatched from eggs laid by the Butterflies, Moths, etc. and are generally distinguished by the colour of their bodies and the number of their feet. It is while in this state they are so destructive to foliage, and appear to exist for no other purpose than to satisfy a voracious appetite, to the ruin of all Shrubs and Trees as become the object of their attack.

Those which attack the Gooseberry and Currant bushes, and the Apple trees are perhaps the best known to the gardener and deserve the most attention. A solution of Fir Tree Oil, one in thirty of thin well boiled flour paste, syringed on the bushes will be a safe remedy. Another good way is to light a Vapour Roll, or a portion of one, and hold it under the bush for one or two

minutes and the caterpillars will all drop on to the ground. They can then be dealt with in the ordinary way of slaughter. It will not be found necessary to cover the bush, as the leaves will prevent the smoke going away quickly. The experiment should be carried out on a quiet day.

MEALY BUG.



Of all hot house pests Mealy Bugs are about the most difficult to exterminate if once they get firmly established and although their white, mealy appearance and the cocoons of cotton-like substance make them easy of detection they may often be found secreted in the most unexpected corners.

They multiply so wonderfully fast that no sooner are they cleared from one plant than they are spreading over others.

These Insects make the plants and fruit they get on so filthy and dirty in appearance that they become to look unhealthy and the patience of the Gardener is sorely tried.

The destruction of this pest is a matter of great importance to the Horticulturist.

Fir Tree Oil is the most perfect Insecticide for destroying Mealy Bugs, and if a gardener is allowed to use it there should be no excuse for having Mealy Bug on the plants or amongst the vines. A little extra attention will soon reduce their number and a little more perseverance will destroy them altogether.

A solution of Fir Tree Oil, one part of Oil to fifteen parts of soft water is about the right strength. This can be tested by taking a leaf with Bug on and dipping it in the solution, if it kills it instantly the strength need not be increased, if the Bug should show any signs of life then the strength may be increased.

It is important in dealing with Mealy Bug that the strength of the solution should be properly attended to, as it will save so much time and labour in applying it.

The solution can be applied with a syringe, brush or sponge, the brush will be the most convenient.

When the solution is applied to growing plants or fruit, it should not be allowed to dry on as it will spot them, especially will this be the case with grapes. In every instance it should be syringed off with water almost immediately after it is applied.

MILDEW.

Mildew which appears on the foliage of many of our most valuable Flowering Plants as blotches of a whitish mould is a form of fungus which is parasitic on living plants and on fruit.

There are certain atmospheric conditions which favour the growth of mildew and fungoids, for at these times the spores float about and attack the plants.

When mildew is first noticed the leaves should be syringed with a weak solution of Fir Tree Oil, one to thirty parts; this will destroy the growing spores and prevent them spreading. It should not be forgotten that mildew grows and ripens in a few hours and if not dealt with quickly it will spread over the whole place.

When Grapes are attacked with mildew the bunches should be steeped in a solution of Fir Tree Oil and then syringed with water. If this is done as soon as it has made its appearance it will be destroyed before it has sent its roots through the skin of the fruit.

RED SPIDER.



Red Spider is a minute parasite belonging to the family of the spiders. It seldom becomes troublesome in damp atmospheres, but thrives as if by magic in an atmosphere that is hot and dry. Its presence is easily recognised by the yellowish brown patches that appear on the leaves. It is easily destroyed by a solution of Fir Tree Oil, one in fifteen of water, and applied warm with a brush or sponge. Owing to the strength of the web they spin to cover themselves, syringing will not answer so well. Plenty of water should be used when Red Spider has made its appearance.

SCALE—Brown & White.



The resemblance of these Insects to mussel shells distinguishes them from the ordinary parasites which infest plants, and their stationary habits would make one believe that the damage they do is not so very great. In the early stages they are very minute and easily destroyed. A solution of Fir Tree Oil, one to ten parts of soft water, applied with a sponge or brush will quickly clear them.

When the plants are not growing, or during the winter, six ozs. of good glue should be dissolved in one gallon of water and this used for mixing with the Fir Tree Oil. It will form a coating over the Insects and quickly kill them.

THRIP.



Thrips are about the most troublesome and annoying pests that can gain a footing in stoves or greenhouses. They attack the underside of the leaves, and although very small they make a great mess by depositing innumerable little spots of black glutinous substance which interferes sadly with the development of the plant and destroys every chance of growth in the fruit.

When they become established in a house they are difficult to eradicate.

A solution of Fir Tree Oil, half a pint to two gallons of soft water, should be freely used with a Syringe. The strength of the solution should be tested by dipping a leaf having thrip on. When the solution is the right strength a few applications will destroy them, after which the leaves should be sponged underneath to clean them from the sticky deposit of the Insects.

WASPS NESTS.

In some parts of the country during hot

seasons Wasps are a great nuisance and destructive to fruit.

The first thing to do is to find the nest ; then in the evening take a piece of cotton wool steeped in a solution of Cyanide of Potassium, one oz. to eight oz. of water, and place it in the entrance to the nest. The next day the nest may be dug out as none of the Wasps will be living.

PARASITES in General.

The varieties of Insects which infest plants are too numerous to mention. Their habits appear to vary but little, but their power of propagation is beyond all conception, and although individually small they form a powerful army, which often proves very difficult to annihilate.

Erroneous ideas sometimes prevail that parasites make their appearance from some spontaneous source ; this will soon be dispelled if they are closely watched for a few days.

All of them are easily destroyed if due attention be paid to the proper use of Fir Tree Oil, and no gardener should be allowed to make any excuses for having dirty plants if he is allowed the use of it.

The directions given in the former pages may be taken as a general guide for all Insects, and whether Fir Tree Oil is used

with a Syringe or Aphicide, in the form of a spray, or with a brush or sponge, care should be taken that the Fir Tree Oil is properly mixed and of the right strength, and then no difficulty will be experienced in keeping the plants healthy and clean.

ANIMAL PARASITES.

Animals generally are subject to the attack of vermin mostly at the periods of sickness when in low condition, or when running loose exposed to the weather and badly cared for.

Under these conditions lice and fleas are most troublesome and should be dealt with. Horses, Cattle, Calves, Pigs and Dogs infested with lice and fleas should be washed over with a solution of Fir Tree Oil, half a pint to half a gallon of water, and applied with a groom brush in such a way that the hair and the skin shall be thoroughly wetted.

If the first application will not have killed them the second wash should be made a little stronger.

The animals should be well groomed and removed to clean quarters.

Mange should be dealt with by having Fir Tree Oil carefully brushed into the skin each day. The curing of mange requires a good deal of patience and attention.

PARASITES ON BIRDS.

Cage Birds are at times infested with small lice, ticks, and fleas.

Fir Tree Oil, one part to three parts of soft water, and applied with a camel hair brush about the head and neck of the birds will readily destroy them.

A solution of one part of the Oil to eight parts of water, applied with an Aphicide in the form of a spray, will soon despatch the fleas. The cages should be brushed inside with Fir Tree Oil and water once a week to keep them clean.

HUMAN PARASITES.

Lice and Nits in children's hair are a source of great trouble to many parents. A strong solution of Fir Tree Oil, one to two of water, brushed well into the hair will soon do away with them.

RING-WORM.

Which forms circular patches on various parts of the body, affects man as well as animals. It is of a fungoid origin, and is produced from spores by contact with other animals. In some instances it is very difficult to cure.

Fir Tree Oil, well rubbed into the

affected parts with a stiff brush once or twice a day, until a thick scurf is produced, will make a perfect cure, and much cleaner in the using than any other preparation.

WINTER DRESSINGS

for VINES, &c.

There is nothing more important than to have an effectual winter dressing for trees, while in the dormant state.

This is best made with one gallon of hot water having six ozs. of good glue dissolved in it, and mixed with three quarters of a pint of Fir Tree Oil—to be applied warm with a brush.

It will form a hard coating over the tree, which gives way in the spring, and allows the circulation of moisture to go on as usual.

FIR TREE OIL

**AS A BLEACHER FOR FLANNELS AND
UNDER-LINEN.**

Fir Tree Oil has a wonderful power of softening woollen material and making it like silk.

About a wine glass full put into the steeping tub and boiler will make an appreciable difference in the look and feel of the clothes.

AS A WASH FOR ANIMALS.

When animals, especially those with long hair, are being prepared for show or sale, they should be washed with water containing Fir Tree Oil. It alters the character of the skin and causes the hair to have a silky appearance.

It is now used in many kennels with splendid results, and when its marvellous effects are better understood it will be in universal use amongst all breeders of animals, and in every kennel in the country.

It is the best specific known for skin disease in dogs, as well as the rheumatic affections which some dogs are subject to.

THE KENNELS,
KNOWSLEY,
PRESCOT.

Dear Sir,

We have used Fir Tree Oil in our Kennels with great benefit, my men use it freely for washing the dogs, and we find it has a very good effect on their coat and skin, besides being pleasant to use.

Yours truly,

JOHN BARNES.

August 14th, 1893.



FIR TREE OIL

INSECTICIDE.

(Registered)

The best and safest of all Insecticides ever introduced for killing Insects and Parasites on Trees, Plants, Animals & Birds.



Small Bottles	6d.	each.
Hlf.-Pt. Bottles	1/6	"
One Pt. "	2/6	"
One Qt. Tins	4/6	"
Hf.-Gall. "	7/6	"
One Gall. "	12/6	"
Two Gall. "	24/-	"

In Bulk, retail 11/- per Gall

Iron Drums, 5 Gallons and 10 Gallons, and Casks, 20, 40, and 60 Gallons each, charged cost price, or returnable.

Suitable also for washing Dogs, Pigs, Poultry etc., for Show purposes,

and as a Disinfectant and Bleacher in washing Fabrics of every description.

A SPECIALIST'S REPORT.

LONDON, November 7th, 1893.

I have carefully examined Fir Tree Oil as an Insecticide for Plants. I find it to contain all the properties requisite for killing Insect Pests without the slightest injury to foliage or the petals of flowers. I think it may be justly considered as a perfect Insecticide.

I should say it would also answer well for destroying Parasites on Animals and Birds.

A. B. GRIFFITHS, Ph.D., F.R.S., (Edin) F.C.S.

Member of the Chemical Societies of Paris and St. Petersburg. Consulting Chemist to the National Amateur Gardeners' Association. Author of "The Diseases of Crops and their Remedies," "A Treatise on Manures," "A Manual of Bacteriology," Lecturer on Chemical Botany, &c.